Evaluation

11 Jan 62

DATE: 9 January 1963

PLACE: NPIC

SUBJECT: Discussion of Modifications to the High Magnification Direct Viewer, Contract NO [redacted] STAT

ATTENDEES:

[redacted] STAT

DISCUSSION:

1. [redacted] STAT called this meeting to present our requirements for an enlarged field of view in the viewer and consider [redacted] STAT method of accomplishing this. Additional desired modifications were presented for [redacted] STAT consideration (see paragraphs ).

2. [redacted] STAT would like to increase the field throughout the full magnification range so as to provide a diameter of 2.5mm or greater at the maximum magnification (51X). The present minimum field diameter is 1.1mm.

3. [redacted] STAT proposes to double the field diameter to 2.2mm at 51X by cementing/fusing together four of the present 0.5" x 0.5" fiber optic cables and increasing slightly the sizes of the enhancers and the objective lenses. They expect to make no changes to the other optical components and guarantee to maintain the present resolution of 8 lines/mm times the maginfication. The price per cable, as of six months ago, was quoted [redacted] STAT on the present instrument).

4. [redacted] STAT claims that to increase the diameter of the field further would require a redesign of the cables and other optical components. At this stage, they cannot guarantee maintaining the present resolution if increase of the field above 2.2mm at 51x is necessary.

5. Such increases in field diameter to the 2.2-2.5mm size would require a 4-time increase in wattage to the high intensity light sources and a change of the condensers in order to provide suffidient illumination. Present brightness is just barely adequate.

6. A less complex solution, which would not involve changing the present fiber optics cables, was broached by NPIC. By increasing the magnification of the eye lenses and decreasing the objective magnification proportionately an increased field of view would result. This course would probably reduce resolution significantly. The size of the present cables would probably limit field increase in the lower portion of the magnification range; however, in the critical area of high magnification there should be a definite increase in field diameter. [redacted] offered to send higher magnification eye pieces so that we might simulate (with an adjustment of the zoom system) such a redesign. STAT

7. Additional improvements discussed briefly included:

a. Provision for viewing two rolls of film, up to 9" wide, at the same time.

b. Motorizing the film drive (s).

c. Decreasing the noise/vibration of the image integrators.

d. Increasing the length of the film loop.

e. Provision of vibration isolators for high magnification viewing.

f. Substitution of the solid reel supports with the "APEL" type.

g. Provision of an optional swithh in the optical paths to improve viewing of stereoscopic panoramic photography.

h. Provision of a true magnification display at all settings and with either set of objectives.

i. Retractable casters for easy movement of the instrument.

j. Provision of an interpuppillary scale.

k. An easier method of adjusting the eye position and the head rest.

l. Provision of protective wire mesh or heavy plastic covers for the presently open top of the power sources.

CONCLUSIONS/RECOMMENDATIONS:

1. This meeting served to alert [redacted] to the improvements on the subject instrument which may be desired by the Navy. STAT

? M. retract objectives out of way of cover glass removal.

2. Information obtained is expected to assist preparation of design objectives for a second model of the High Magnification Direct Viewer.

STAT